Assessment of Psychophysiological Detection of Deception (PDD) Pretest

Final Report
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Battelle Memorial Institute
Columbus Operations
505 King Avenue
Columbus, OH 43201

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Counterintelligence Field Activity
Defense Academy for Credibility Assessment
7540 Pickens Avenue
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The Defense Academy for Credibility Assessment (DACA) Research Division contracted with Battelle to conduct scientific research to determine the relationship between the content of the Psychophysiological Detection of Deception (PDD) pretest interview and PDD examination results. The primary objective of this effort was to extract information from designated PDD pretest accomplished performers (APs) through coordinated in-depth interviews (IDIs). The second objective was to provide recommendations for the integration of this revealed information into one-or-more performance-enhancing interventions such as new training, personnel screening, or motivational incentives, with the ultimate goal of bringing pretest novices or "non-experts" up to speed in a more rapid fashion. A list of proposed interventions is provided including, but not limited to, support for examiner candidate screening, additional coursework, online training and information dissemination, support for regular examiners "lessons learned" conference, and providing a framework for formal examiner mentoring.

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UNCLAS	UNCLAS	UNCLAS			19b. TELEPONE NUMBER *(Include area code)* (803) 751-9100

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Prepared by:
Battelle Memorial Institute
Columbus Operations
505 King Avenue
Columbus, OH 43201

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Abstract

The Defense Academy for Credibility Assessment (DACA) Research Division contracted with Battelle to conduct scientific research to determine the relationship between the content of the Psychophysiological Detection of Deception (PDD) pretest interview and PDD examination results. The primary objective of this effort was to extract information from designated PDD pretest accomplished performers (APs) through coordinated in-depth interviews. The second objective was to provide recommendations for the integration of the results into one or more performance-enhancing interventions such as new training, personnel screening, or motivational incentives, with the ultimate goal of bringing pretest novices or "non-experts" up to speed more rapidly.

Twenty APs from three DoD-agencies and eight non-DoD agencies participated in four hour interviews. Interviews consisted of a structured interview about the PDD pretest and more general, open-ended questions. Analysis of the structured Human Performance Technology (HPT) data suggests a close alignment between current pretest curriculum and pretest execution by APs. Average difficulty and importance ratings of key outputs of a pretest indicate that APs place the greatest emphasis on (1) developing a precise and focused set of comparison and relevant questions; (2) creating a common, shared, and current understanding of the relevant testing issue; and (3) creating confidence within the mind of the examinee that the PDD process is effective in detecting deception and that the examiner is a professional.

A content analysis of the comments from the HPT process and some of the open-ended questions identified traits, skills, and positive and negative influences on performance. The important traits included an ability to be detail-oriented, fair and impartial, and a belief in polygraph; the important skills included an ability to establish rapport, excellent interview and interrogation capabilities, and an ability to develop targeted questions. Positive influences suggested that APs are intrinsically motivated; commonly mentioned positives included resolving issues, helping the case agent, and a sense of personal satisfaction. Negative influences included workload (either too many cases or too many different responsibilities) and travel demands, among others. These factors (skills, traits, motivations) hint at potential screening criteria for new examiners.

A list of proposed interventions is provided including, but not limited to, support for examiner candidate screening, additional coursework, online training and information dissemination, support for a regular examiners "lessons learned" conference, and providing a framework for formal examiner mentoring.

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1.0 Project Background

The Defense Academy for Credibility Assessment (DACA) Research Division contracted with Battelle to conduct scientific research to determine the relationship between the content of the Psychophysiological Detection of Deception (PDD) pretest interview and PDD examination results. The PDD pretest interview is the portion of the examination process that precedes the physiological data collection and decision process.

The PDD examination is a process in which an examiner makes a decision regarding the truthfulness of an examinee, based on physiological responses to questions. Examiners' ability to make a correct decision, either Deception Indicated (DI) or No Deception Indicated (NDI), has been attributed to the content and procedures followed in the pretest. During the pretest, the examiner explains the PDD examination procedure to the examinee. The examiner also ensures that the examiner and examinee interpret the questions in the same way. The examiner may also attempt to influence the expectations of the examinee in regards to the accuracy of the test. Finally, the examiner is likely to form impressions of the examinee's truthfulness, based on the examinee's behavior and responses during the pretest. Administering the pretest is a complex task that involves a wide range of behaviors, from the technical administration of the exam to the ability to read subtle behavioral cues of the examinee; for more detail on the pretest, see PDD 501 – Pretest Interview (DoDPI, 2004). The pretest represents an area of the PDD exam where a variety of approaches and personal styles exist, and yet very little is known about the individual components that make this process effective.

This effort was designed to produce insight into the conduct of a successful pretest and support the Counterintelligence Field Activity's (CIFA) mission to provide world-class PDD training and performance-enhancing interventions to both its Department of Defense (DoD) and non-DoD customers. The interventions identified using the expert information could provide additional knowledge-based tools and resources to perform at elevated levels in shorter time frames. Furthermore, knowledge garnered relative to the defensible components of the process could then be used to develop shortened variations of the pretest process, for use in high volume screening contexts, including embassy and security checkpoints. Overall this effort supports PDD-related counterterrorist, counterintelligence, and law enforcement efforts throughout the federal government.

2.0 Project Objectives

The primary objective of this effort was to extract information from designated PDD pretest accomplished performers (APs) through coordinated in-depth interviews (IDIs). Analysis of the IDI content served to determine the optimal approaches or techniques undertaken by the examiner during the pretest portion of the credibility assessment examination. These optimal approaches should maximize the accuracy and diagnostic value of the examination results.

The second objective was to provide recommendations for the integration of this revealed information into one or more performance-enhancing interventions such as new training, personnel screening, or motivational incentives, with the ultimate goal of bringing pretest novices or "non-experts" up to speed more rapidly.

3.0 Project Report Scope

This project report presents the approach, analysis activities, and a summary of results and recommendations from a series of in-depth interviews conducted over the reporting period.

4.0 Technical and Management Approach

The Saba™ Peak Performance System (PPS) and its accompanying Human Performance Technology (HPT) process formed the basis of the technical approach to data collection for this effort.[1] HPT-based programs focus on accomplishment-based human development and management, whereas other approaches may only target training. HPT includes job aids, selection, motivation and environmental factors and determines when these may provide the greatest potential for performance improvement. For a detailed description of the process, see U.S. Coast Guard's *Human Performance Technology (HPT)/Instructional Systems Design (ISD) Handbook (2000)* or *Standard Operating Procedures (SOP) for the Coast Guard's Training System, Volume 2: Analysis.*

HPT is the process of analyzing, designing, developing, implementing and evaluating projects to influence human behavior. This methodology, first introduced by Dr. Joe Harless, offered two key advantages for the DACA PDD pretest project:

1. It is a well-documented, widely applied process that is focused on behavior outcomes, such as developing efficient and effective training.
2. It minimizes the time required to translate training requirements into validated and verified capabilities and fielded training or job-aiding interventions by:
    - resolving conflicting goals early in the training development process;
    - avoiding major disruptions or delays due to conflicting requirements discovered later in the training development spiral; and,
    - influencing training system design to reduce the performance gap between expert and novice.

As a methodology, HPT focuses on the outputs produced by top performers and builds upon these outputs to create strategies for disseminating expertise across the work population. In short, it relies less on structuring instructional design on how

1. Saba Software, Inc. (www.saba.com) is a leading provider of human capital development and management infrastructure software and services. The HPT performance tools, services, and workshops are currently being used by over 800 leading global enterprises including 3Com, BellSouth, Chase Manhattan Bank, Duke Power, Federal Express, Ford Motor Company, Motorola, Procter & Gamble, Sprint PCS, and the U.S. Coast Guard.

something is done in principal and more on the empirical evidence of how activities are actually accomplished by current exemplar performers (i.e., those individuals that have been identified as the most effective at completing their job within an organizational system).

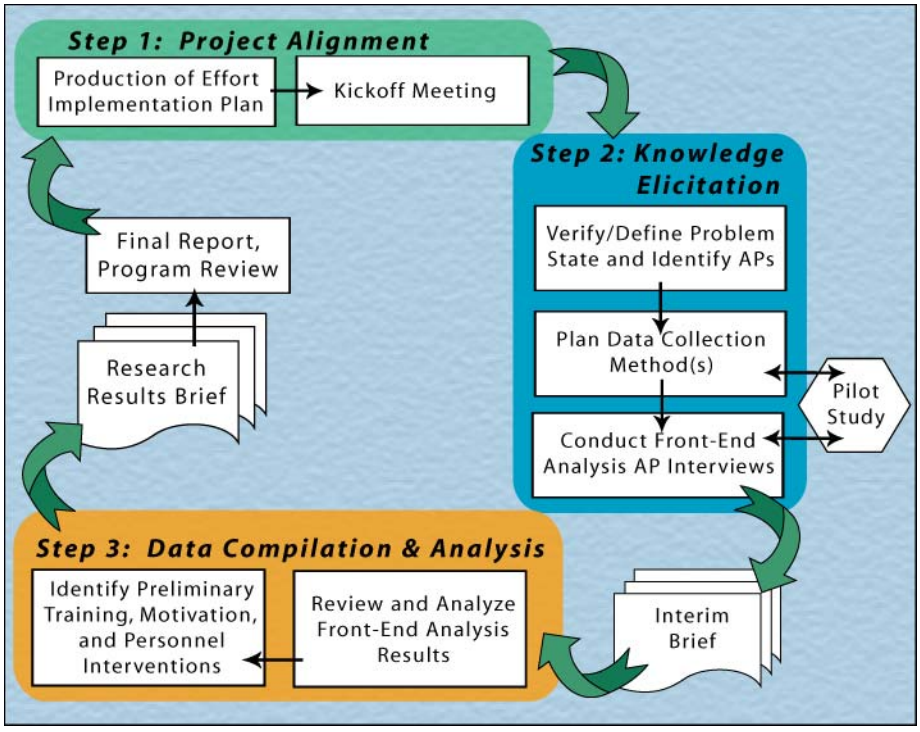
An analysis of a given role—in this case, a PDD examiner conducting a pretest—reveals the single core pretest "Job" Accomplishment. The key element of this identification of the job accomplishment is being able to measure all the individuals who hold the role against a given, measurable standard. Generally speaking, the results of the whole peer group can be placed into a normal distribution, and the individuals in the far right of the curve represent "star performers;" where the majority of the group will hover around the middle, the far right outliers have worked out a way to achieve more and better results.

Through a combination of interviews and analysis, a picture is built of the key—or "Major"—accomplishments achieved by these star performers, which allow them to create better overall job accomplishment results. A primary aspect of this work is the fact that the information being collected is contextually strong; that is, these APs have worked out how to complete a process within the context of the existing system, which means that the procedures being captured empirically will be highly likely to produce successful input that increases the value of subsequent interventions.

Figure 1 shows the HPT process and flow. The following sections describe the HPT process undertaken for project coordination and subsequent AP knowledge elicitation through the execution of front-end analysis (FEA) IDIs through the three steps:

- Project Alignment
- Knowledge Elicitation
- Data Compilation and Analysis

FIGURE 1. **PDD Pretest Project HPT Process and Activity Flow**



Because the HPT process is output driven and the content of that output comprises feedback gained from the IDIs conducted with APs, the results that are reported herein are a direct synopsis of the accomplishments, recommendations, and comments received.

4.1 Project Alignment

The project alignment effort comprised the development of a detailed Production of Effort Implementation Plan (Gantt chart) and the execution of the kickoff meeting to review, discuss, and agree upon the project objectives and timeline, as well to as gather existing DACA data, determine the precise project scope, and review the proposed analysis methods.

4.2 Literature Review

A review of the published PDD literature was conducted primarily to facilitate the researchers' understanding of the basic PDD history and processes as well as to generate ideas for the development of IDI questions.

The bulk of the information reviewed was derived from academic and scientific literature, including books, technical reports, American Society for Testing and Materials (ASTM) guides and journals from the fields of PDD testing, forensic psychophysiology, interview and interrogation, and verbal and non-verbal communication. Further, government publications such as Army regulations, Secretary of the Navy Instructions, Counterintelligence Field Activity technical manuals, and DACA curriculum material provided valuable procedural information.

Comprehensive reviews of the PDD and deception literature are provided elsewhere (see DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003; Iacono, 2000; Reid & Inbau, 1977; Abrams, 1989; and Kleiner, 2002) and are, therefore, not repeated in this project report. However, the results of this literature review were helpful in that an understanding of the application and standards of practice for the PDD examination was gained by the Battelle researchers prior to conducting the AP interviews. In addition, the material published in the *Journal of the American Polygraph Association* (see Daily, 1974; Mullenix & Reid, 1980; and Wygant, 1980) and the current DACA curriculum material provided an extensive review of the pretest premise and current execution. No empirical data directly relevant to the assessment of AP performance of the pretest and its relation to achieving conclusive PDD results was identified. These results were expected. Based upon the information gained during the project alignment discussions, it was understood that very little research in this area had been conducted to date and that the output from this project would form the basis for future data collection activities.

4.3 Knowledge Elicitation

Accomplished PDD performers—indeed, experts in any profession—are often unable to explicitly describe the knowledge that makes them exceptional. Instead, it requires observations and formally structured interviews with APs to identify the mental models, heuristics, and overall task knowledge of the best examiners.

This stage of the HPT process comprised defining the problem state (in this case, the behavioral and conceptual differences between expert and "non-expert" examiners); identifying appropriate APs; planning the data collection methods and developing the corresponding forms; and conducting the IDIs.

The HPT process relied upon the structured interview of APs or exemplars. These are PDD examiners who are effective in conducting pretests resulting in accurate and diagnostic credibility assessment results (i.e., the examination results include a very low number of "inconclusives"). Interviewing APs could allow the procedures, techniques, and insights used by the best examiners to be incorporated into training enhancements. In addition, the HPT process could identify the motivational issues, personnel selection criteria, and other environmental factors that can be either barriers or catalysts to competent performance.

As shown in Figure 2, the method of analysis began with a complete identification of DACA operational and organizational goals – in this case, an increased number of examiners producing conclusive DI/NDI results from PDD exams. APs were interviewed to identify what accomplishments (i.e., valuable outputs) are necessary to achieve the goal and, in turn, what critical skills and behavior (i.e., actions) are implemented to produce the outputs. Performance criteria, importance, and difficulty data were captured with respect to the accomplishments. An analysis of the data captured leads to the identification of likely performance-enhancing interventions.

FIGURE 2. **HPT Front-end Analysis Flow**

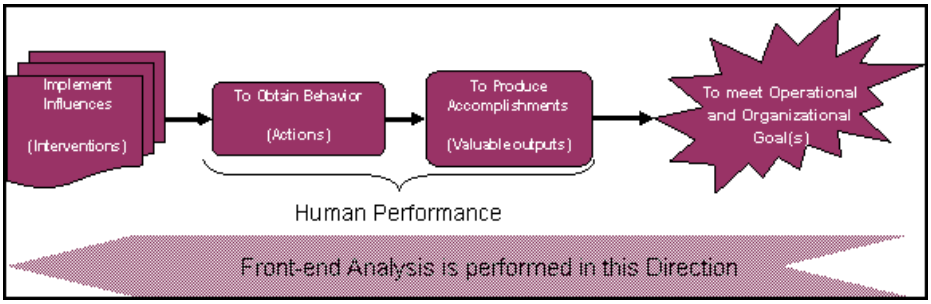
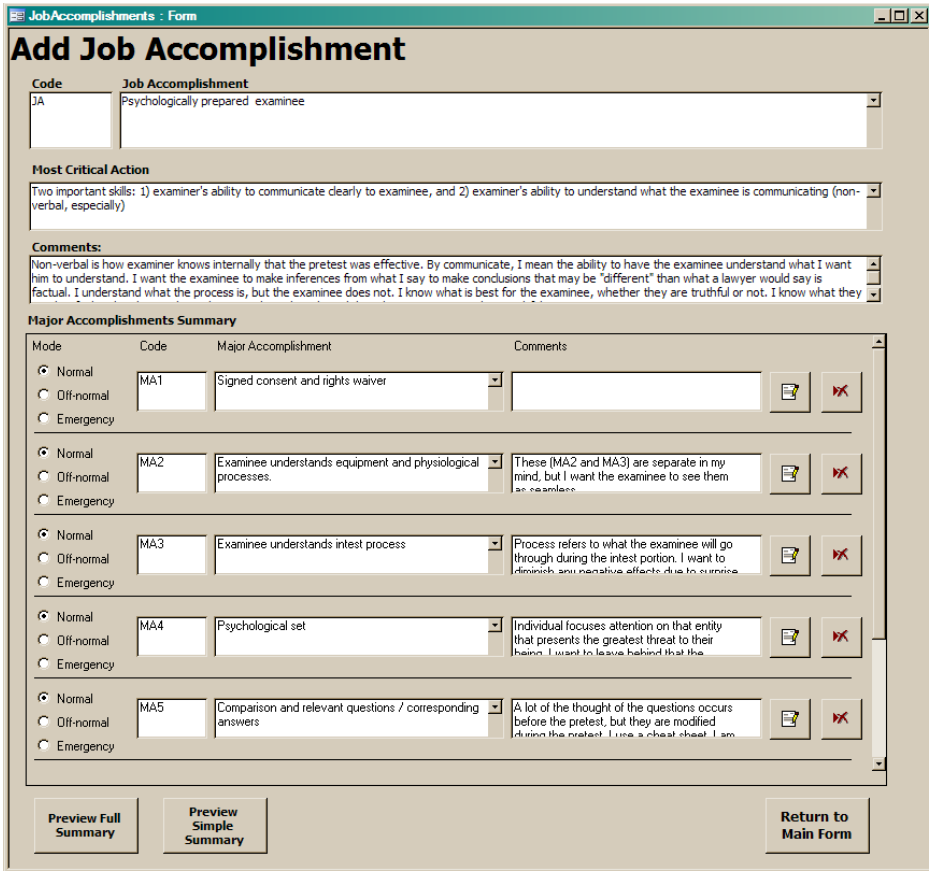


Figure 3 shows the primary form for the collection of job accomplishment (i.e., overall output at the end of the pretest), most critical action(s) /skills involved in the achievement of the job accomplishment, and the major accomplishments (i.e., interim outputs that support the job accomplishment).

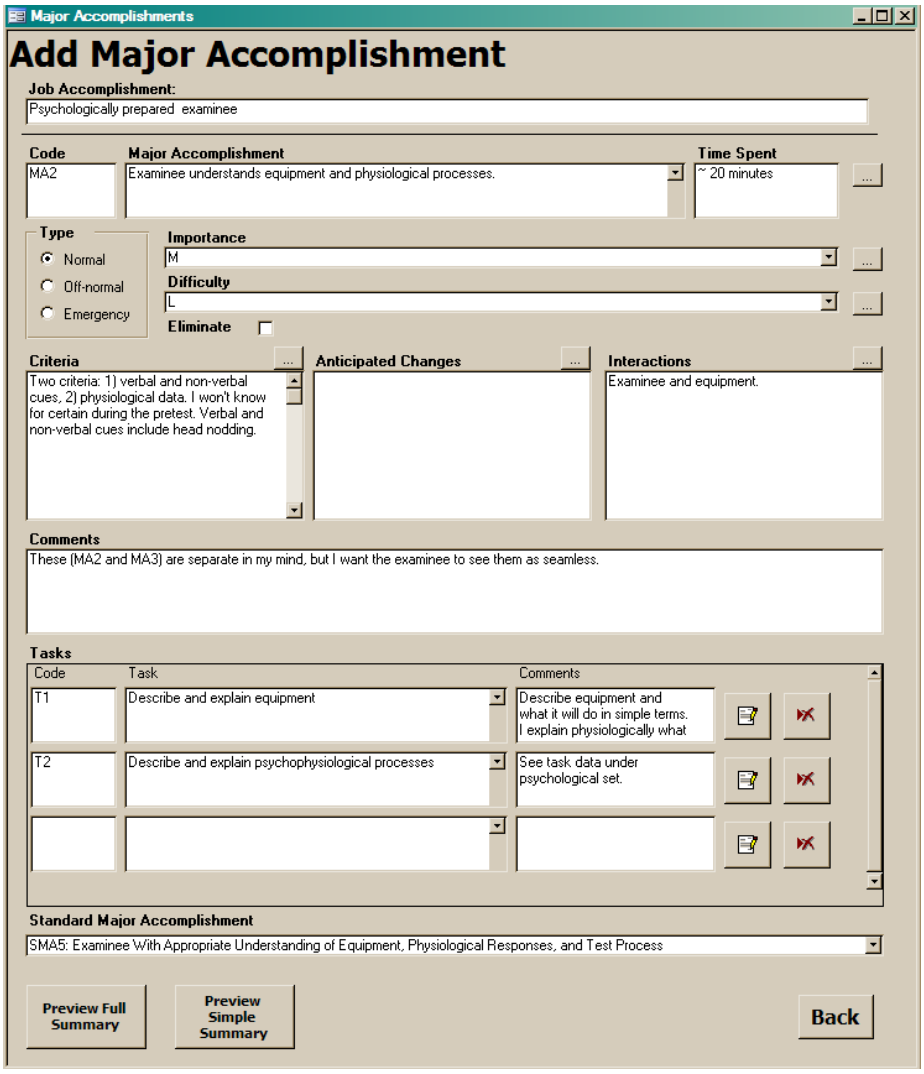
FIGURE 3. **Main Job and Major Accomplishment Data Capture Access Form**



The next layer of data collection comprised detailed information for each of the major accomplishments. Figure 4 shows the data fields used, to include the primary elements as follows and additional fields for comments and primary tasks:

- Job Accomplishment
- Major Accomplishments
  - Importance (4 pt scale)
  - Difficulty (4 pt scale)
  - Time spent
  - Criteria for success
  - Major interactions

FIGURE 4. **Major Accomplishment Data Capture Access Form**



The researchers recruited APs by soliciting DACA-selected Federal DoD and non-DoD agencies, which maintain programs that conduct specific-issue examinations. Program managers and examiners were informed that the focus of the project was the pretest portion of the PDD exam. Criminal, specific-issue exams were the focus, rather than employment screening or intelligence exams.

The researchers contacted a total of four DoD and eleven non-DoD agencies to request their participation. One DoD agency and one non-DoD agency declined to participate. Both agencies declined to participate to maintain confidentiality of their personnel and processes. Two additional agencies agreed to provide names of exam-

iners who might be willing to participate; however these examiners could not participate due to scheduling constraints.

For the agencies that agreed to participate, program managers were asked to provide the names of "examiners that consistently produce correct DI/NDI decisions, few No Opinion decisions, and rarely have Quality Assurance (QA) issues; examiners that you would trust with your most difficult cases." Rather than collecting performance metrics and independently identifying APs, researchers relied on program managers to provide their best examiners. This was the most expedient way to identify potential participants, but no data exists to compare similarity (or differences) of competency across participants.

Nominated examiners were contacted and asked whether they were willing to participate. Examiners were informed that their participation was voluntary, and that with their permission they would be acknowledged in the report. They were also reminded that the interview would cover the pretest for criminal specific exams. Audio recordings of the interviews were captured for reference during the analysis process, when permitted. Sixteen examiners allowed us to record their interview, two requested to not be recorded, and two participated on condition from their agency that the interview was not recorded.

AP interviews generally lasted four to six hours. The interviews were divided into three sections: an introductory brief to the project was provided by the investigators, followed by the structured interview to capture accomplishment data, and then a guided discussion targeted to open-ended questions such as those found in Appendix A.

During the structured data collection, the job accomplishment, major accomplishments, tasks, and supporting data were elicited from the interviewee. To elicit the job accomplishment, researchers asked the examiner what was the "primary output" of a successful pretest. If necessary, researchers offered clarifying examples from other domains; for instance, "profit is the job accomplishment of a sales person." After eliciting the job accomplishment, researchers asked the examiner what the most important critical skill is to achieving the job accomplishment.

After collecting the job accomplishment data, the researchers elicited the major accomplishments from examiners. researchers asked examiners to start from the beginning of a PDD examination and identify the outputs that lead to the production of the job accomplishment and a successful pretest. Examiners would then describe their workflow and accomplishments. If necessary, the experiments provided an example of a major accomplishment as "a signed consent form" and compared it to the task of "I ask the examinee to sign a consent form" in order to reinforce the idea of accomplishments and outcomes (i.e. a signed form) compared to tasks (i.e. presenting, reading, and obtaining a signature on a form). Collection of the major accomplishments concluded when the examiner indicated that the in test portion of the exam would begin. The examiners were explicitly asked to define the end of the pretest.

After collecting the major accomplishments, the researchers asked examiners additional questions about each of their identified major accomplishments. These ques-

tions included: “How important is this major accomplishment?” and “How difficult is it to achieve this major accomplishment?” If necessary, clarifications were provided to reinforce that these questions were in reference to the pretest and how the major accomplishments support the job accomplishment.

The researchers also asked examiners about interactions and time spent on each major accomplishment. Interaction refers to whether the examiner was working primarily with the examinee, equipment, or materials. Time spent refers to the amount of time an examiner may spend on each major accomplishment (i.e., how much time do you spend getting signatures on a consent form?). The interaction data were very consistent across examiners and are not discussed further in the results sections.

After completing the structured data collection for the AHP process, the researchers engaged examiners in a conversation regarding several open-ended questions. The questions included “What are positive influences on your performance?”, “What are negative influences on your performance?”, and “What are common mistakes that new and novice examiners make?” The conversation also provided the examiner an opportunity to revisit any comments made during the structured interview that were not pretest-specific, such as motivation and career development.

Analysts reviewed the data captured following each interview and iterated any questions or unclear comments with the AP to ensure there were no gaps and that each comment was captured and recorded as the AP intended.

4.4 Data Compilation and Analysis

Major accomplishments captured during the interviews and documented in the database were categorized into summary major accomplishments. These summary major accomplishments represent common themes across AP responses. Importance and difficulty ratings captured for the individual major accomplishments are reported herein at the summary accomplishment level.

Responses to open-ended questions and comments elicited over the course of the interviews were extracted from the interview notes and added to a comments list. An analysis of these items revealed that their topics varied widely, but that in general, the items fell into three categories:

- Traits of expert examiners
- Skills APs must possess
- Interventions that would help novices more quickly become APs

Analysts then sorted the comments into these categories and grouped related items in each category to aid comprehension of the content. The complete lists of examiner traits and examiner skills are shown in Appendix B. The suggested interventions are discussed in Section 7.0, “Conclusions and Recommendations”.

5.0 Results

5.1 AP Demographics

A total of 20 AP interviews were conducted from October 2006 to April 2007. The participating agencies and the number of APs from each are shown in Table 1 below.

TABLE 1. Participating Agencies

Agency	No. of APs
US Postal Inspection Service	3
Drug Enforcement Administration	3
Bureau of Alcohol, Tobacco, and Firearms	3
US Postal Service - Office of the Inspector General	2
USA Criminal Investigation Command	2
Immigration and Customs Enforcement	2
Department of Treasury, Internal Revenue Service	1
Defense Security Service	1
Department of Justice	1
Food and Drug Administration	1
Defense Criminal Investigative Service	1

Relevant AP statistics are as follows:

Experience:

- Age = average 47 years (range 33-56 years)
- PDD experience = average 11 years (range 5-28 years)
- Investigative experience = average 19 years (range 7-32 years)

Education/Background:

- Criminology/Criminal Justice – 10 examiners
- Military service – 9 examiners
- Police – 4 examiners
- University of Virginia/Advanced Polygraph Studies – 3 examiners
- Argosy University/Forensic Psychology – 5 examiners

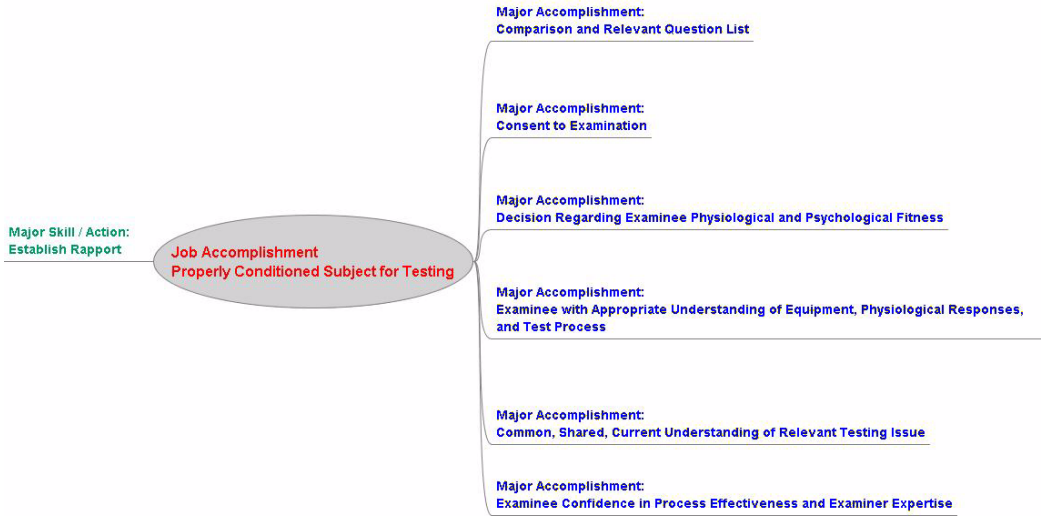
Overall, these were highly skilled, mid-career to senior examiners. Half of the examiners had degrees in Criminology or Criminal Justice; at least five examiners had advanced coursework or degrees from either the University of Virginia Advanced Polygraph Studies program or Argosy University's Forensic Psychology program. All

of the examiners had some form of investigative experience, either in law enforcement, the military, or some other capacity in the federal government.

5.2 Job and Major Accomplishment Data

The overall pretest job accomplishment and contributing summary major accomplishments mapped closely to the existing DACA PDD Program curriculum. This suggests that APs generally adhere to the "school solution" process and goals when executing a pretest for criminal specific exams (Figure 5).

FIGURE 5. **Job and Major Accomplishment Hierarchy**



The job accomplishment was "A properly conditioned subject for testing." All 20 APs reported a similar overall job accomplishment. The accomplishment included concepts such as "establishing a proper psychological set," "psychologically prepping the examinee," and creating an examinee that is "convinced the process is valid and accurate." The APs described the properly conditioned subject as one who is focused on the comparison questions if truthful, or focused on the relevant questions if deceptive.

The critical skill most often associated with the job accomplishment by APs was the ability to establish rapport at the appropriate level for the examinee's background and education level. A total of eight examiners specifically mentioned rapport as the most critical skill, and six examiners mentioned rapport-related factors, such as showing empathy, appearing neutral, conveying confidence and competence, and communicating clearly. Other critical skills that APs mentioned were "being objective," "trust in the process," and developing clear, understandable relevant and comparison questions.

The summary major accomplishments are:

Examinee confidence in process effectiveness and examiner expertise — This summary major accomplishment included outputs related to producing an examinee confident in the examiner's abilities and convinced that the PDD process is effective. The tasks involved in this major accomplishment included the conduct and "selling" of the acquaintance test, and presenting a confident, professional manner. Seventeen occurrences of this summary major accomplishment were recorded.

Consent to examination — This summary major accomplishment included the signing of the consent form and rights waiver. The tasks involved in this accomplishment were reading, obtaining signatures, and filing away the forms. Twenty occurrences of this summary major accomplishment were recorded.

Decision regarding examinee physiological and psychological fitness — This accomplishment aligned with assessing whether any medical or mental issues would prevent the collection of meaningful charts. The tasks involved included the completion of the biographical data sheet(s), assessing verbal and non-verbal behavior, and evaluating the stress or general nervous tension level of the examinee. Nineteen occurrences of this summary major accomplishment were recorded.

Common, shared current understanding of relevant testing issue — This accomplishment involved ensuring the examinee explicitly understands the relevant testing issue. The tasks associated with it included soliciting the examinee's version of the case facts, reviewing the case facts with the examinee, and reducing the "wiggle room" in relevant questions. Fifteen occurrences of this accomplishment were recorded.

Comparison and relevant question list — This accomplishment comprised the development of targeted and specific comparison and relevant questions to be administered during the in-test portion of the examination. The tasks associated with this summary major accomplishment involved collecting biographical data, identifying and developing appropriate themes, reviewing case facts, and reviewing final questions with the examinee. APs expressed comments regarding the importance of suppressing responses to comparisons questions during the discussion of this major accomplishment. Also, test question construction for both relevant and comparison questions was emphasized (ensuring the test issue was covered, eliminating "wiggle room," keeping questions simple and specific). Twenty-six occurrences of this major accomplishment were recorded. Some examiners split their major accomplishment into one for relevant questions and one for comparison questions. Seventeen instances discussed both comparison and relevant questions, eight instances discussed comparison questions only, and one discussed relevant questions only.

Examinee with appropriate understanding of equipment, physiological responses, and test process — The tasks associated with this accomplishment included describing fight, flight, and freeze and describing each piece of equipment. These descriptions were often anecdotes and non-technical explanations; the descriptions and stories were tailored to the individual examinee, based on their edu-

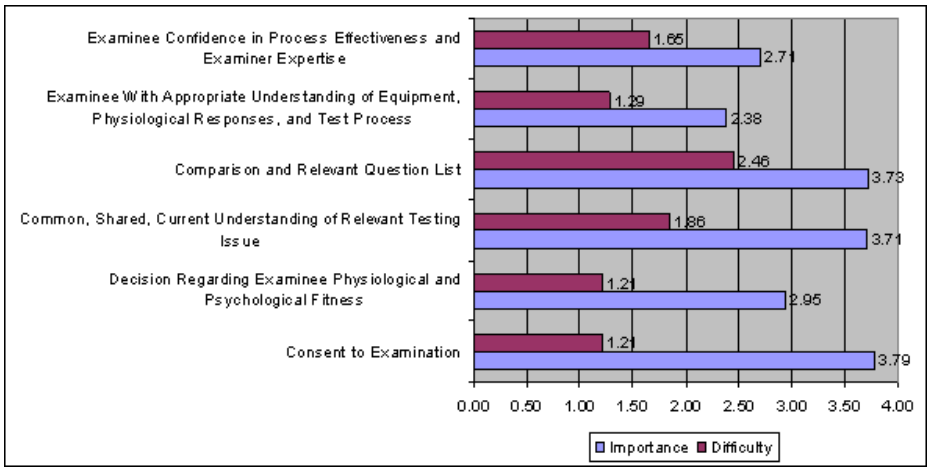
cational and personal background. Twenty-one occurrences of this accomplishment were recorded. Some examiners split their major accomplishment into one for equipment and one for physiological processes.

Twelve major accomplishments that did not fit into one of the six summary major accomplishments were also identified. Five of the 12 were rapport-related and were subsequently categorized as a skill, rather than a major accomplishment. Three were reiterations of the overall job accomplishment, "A properly conditioned subject for testing." The remaining four accomplishments involved deciding the likelihood that an examinee would attempt to use countermeasures; making a decision regarding the appropriate interview technique; identifying themes for the post-test; and establishing an appropriate General Nervous Tension (GNT) level in an examinee.

The average importance and difficulty ratings for each of the summary major accomplishments are presented in Figure 6.

FIGURE 6.

Average Importance and Difficulty Ratings for Summary Major Accomplishments



Based upon the combined importance and difficulty ratings and a review of the AP comments, it appears that the greatest focus and effort is placed upon (1) developing a precise and focused set of comparison and relevant questions, (2) creating a common, shared, and current understanding of the relevant testing issue, and (3) creating confidence within the mind of the examinee that the PDD process is effective in detecting deception and that the examiner is a professional.

While still rated somewhat important, APs tended to place lesser emphasis on the technical aspects of explaining the equipment function and the physiological processes associated with the body's fight, flight, or freeze response. APs commented that they never skip this step and that it is important to explain the equipment and physiological processes in a manner consistent with the education and background of the examinee. However, many of the APs also stated that even if the examinee is unable to fully understand the equipment and physiological processes, this would not

prevent them from running the examination with a high degree of success. The rationale was that the equipment and the physiological responses that they measure are very complex; a brief anecdote or explanation is not enough of an explanation for the examinee to truly understand the equipment and physiology, and some examinees do not have the capability to comprehend a detailed explanation. The APs stated that it is more important for the examinee to believe that the PDD exam is effective than to understand how or why it is effective. These APs felt that if the examinee is adequately focused on the comparison and relevant questions, a complete understanding of the equipment and physiological processes is not necessary.

A similar logic was often stated pertaining to making a correct decision regarding an examinee's psychological and physiological fitness for testing. APs noted this was an important part of the pretest but in many cases very easy to do based upon the answers received to medical and psychological history questions. In cases where the decision was less clear cut, the APs generally stated they would go ahead and complete the pretest and make a further determination following the collection of the first chart or two during the in-test portion of the examination.

Finally, the APs rated gaining consent and waivers for the examination as highly important. This is to be expected as, without it, the formal PDD examination cannot continue. However, APs also stated this was an additional opportunity to condition the examinees by "down playing" the importance of the consent and waiver documents, thereby reducing the general nervous tension associated with the examination. Generally, APs did not find it difficult to gain consent from the examinees.

The HPT results suggest that APs do not deviate from the pretest procedures taught by DACA. While following the guidelines learned from DACA, APs carefully develop relevant and comparison questions, customize content to be appropriate to each examinee, and attempt to gain rapport and credibility with the examinee. APs abilities to achieve the job accomplishment and major accomplishments may be a product of skills and traits required to develop questions and build rapport. Sections 5.3 and 5.4 discuss the traits and skills possessed by APs that support their exemplary performance at conducting PDD exams.

5.3 Self-reported "Most Important" AP Traits

Analysts reviewed APs' statements about the traits required of expert examiners as found in the interview notes and counted the number of times a particular trait was mentioned by the interviewees. Each trait was counted only once per interviewee, no matter how many times an individual mentioned the trait. The items discussed by the most APs were then included in the list of most important AP traits, as shown below.

- Must make conscious effort to do the job right every time
    - Self-starters that stay current and are willing to critique their own work for "lessons learned"
    - A passion for the job and resolving conflicts
    - Confidence in abilities but willing to be a "student" and learn from others

    - Constantly aware they must avoid becoming lazy, complacent, or robotic
- Must be detail-oriented
- Must have ability to "think on your feet"
- Must have outgoing personality (but not necessarily an extrovert)
- Must believe in what you do
- Must care about what you do
- Must be fair and impartial/non-judgmental

The self-reported, exemplary examiner traits could form the basis of a screening protocol for hiring examiners. Several APs mentioned that a screening tool or screening guidance would be helpful to agencies in hiring/selecting candidates for the polygraph profession. One said that DACA could help by "aiding agencies in personnel selection guidance [candidates for polygraph school]." Another mused about the need to "compare people from 'good' agencies and 'bad' agencies. What makes an agency good? How do good agencies screen their people?"

A list of all traits offered by the APs can be found in Appendix B.

5.4 Self-reported "Most Important" Skills

Much like the list of most important AP traits presented above, a list of most important examiner skills was extracted from the interview notes by counting the number of times a particular skill was mentioned by the AP interviewees. Again, each skill was counted only once for each examiner who discussed it. The list of most important skills is included below.

- Possess ability to establish rapport at the right level for the examinee's background, education, social status, etc.
    - Keep your ego in check and treat people with integrity
    - Draw upon varied life experiences
    - Customize examples/stories
- Understand the complexity of and have confidence in the process
    - Use the "school solution" as a baseline but do not adopt a checklist mentality leading to a monologue approach
    - Don't focus on the technical operations and lose sight of the "gestalt" (i.e., even the "little things" such as how you present the rights/waiver information can influence the outcome)
- Possess refined interview/interrogation skills
- Use precisely defined language and meanings in order to develop targeted questions
- Use "active" listening
- Attend to detail

It is quite difficult to separate AP characteristics from the skills that many of them possess, and a number of common themes appear across the two lists. For example, APs reported both the required trait of "Must be detail-oriented" and the skill of "Attend to detail" to describe exemplar examiners.

In general, APs are motivated to perform at a high level by internal factors. Examiners are intrinsically motivated by their desire to assist the case agent, serve the innocent and identify the guilty, and serve the public. Extrinsic motivators, such as salary or recognition from their agency, were described as "nice to haves" but not performance drivers. Some APs found it particularly rewarding that their sole job function was polygraph; they believed that it provided them the opportunity to focus their skills and hone their craft. On the other hand, many APs with multiple job functions reported to enjoy having additional investigative responsibilities and felt that it made them better examiners. We have no additional data to address whether one situation produces better examiners than the other and can only speculate that personality difference may incline some examiners to prefer more varied work than others.

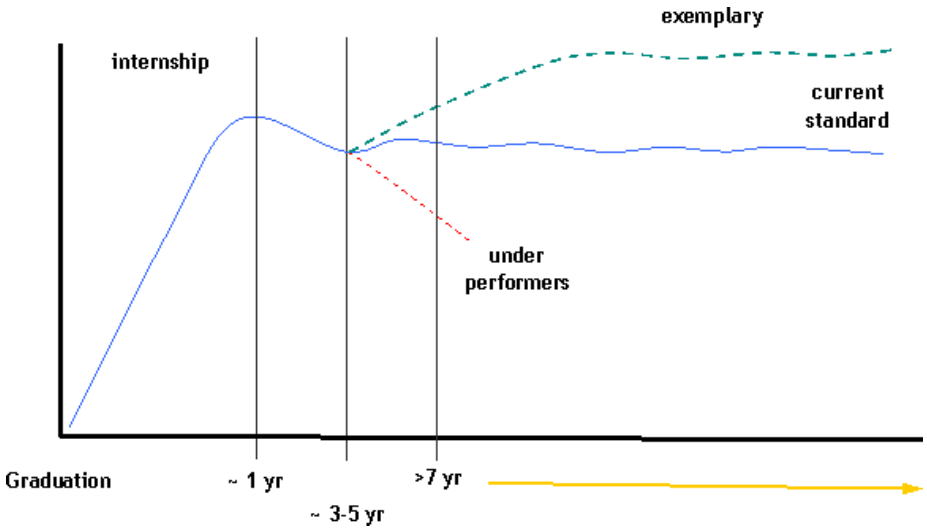
APs reported that having "people skills" was important to be a good examiner. Several mentioned that having some investigative experience and proven interrogation skills should be a prerequisite for the PDD program. However, the ability to develop rapport and collect themes for the post-test were not perceived as the same as an extroverted personality. Instead, APs emphasized that the ability to "actively" listen and draw upon a broad range of life experiences were more important factors.

5.5 Notional Examiner Performance Curves

During the course of the IDIs, AP feedback to the open-ended question portion of the interview provided insights into a perceived trend in examiner performance over time. While based solely on subjective feedback from the AP interviews, this notional performance graph provides the groundwork for a future quantitative investigation of examiner performance over time. It also serves as a first look into the potential critical points at which DACA-developed interventions may prove most effective.

The career development of PDD examiners was specifically discussed with eleven APs. Three APs provided the entire span of career development for under performers, average examiners, and exemplary performers, as shown in Figure 7, and eight others commented on their perceptions of analyst performance during the internship and shortly thereafter. Ten APs suggest that performance of examiners coming out of the DACA program increases over time; seven reported that this improvement could be observed over approximately the first 12 – 24 months, primarily due to the experience gained during the internship period when examinations are supervised and examiners receive individual and immediate performance feedback. APs reported a range of time to reach peak performance. At the low end, one examiner reported "getting it" immediately out of training. This examiner also did not believe that examiners who did not "get" or believe in the process could ever become excellent examiners. At the upper end, two examiners reported requiring 5 years to feel that "you could throw me anything and I could handle it." During this period, the APs reported that novices are "focused on technical operations versus the whole process."

FIGURE 7. **Notional Examiner Performance Curves**



Following this internship period there is a perception that performance falls off somewhat (i.e., a greater number of instances of inconclusive results). Possibly this is an indication of examiners gaining a comfort level with the process and beginning to stray from the "school solution" in an attempt to streamline the examinations. Another reason could include the discontinuation of individual supervision and feedback during a time when examiners are still encountering new and unique examinees and cases. For some, this may be the period in which they have gained sufficient exposure to the PDD career demands and path and have found it to be no longer in line with their expectations.

This downward trend may continue for a period of months or, in some cases, years; however, most agencies and DACA have quality control processes in place that are able to detect this trend earlier rather than later to allow individual intervention and correction to take place. Current options for this intervention appear to be individual mentoring by senior examiners (not unlike that which takes place during the internship year) or enrollment in the DACA's PDD Refresher Course.

It appears that following this period, with its associated interventions, the path examiners may take splits three ways. The vast majority will regain their earlier performance level and stabilize there for the remainder of their careers. Some will continue the downward trend and either leave the profession voluntarily or be dismissed within a relatively short period of time. The third group will gain new insights and expertise with the results being a marked improvement in performance; these are the exemplars such as those APs interviewed for this effort. While we discussed aspects of the career development paths with half of the APs, all of the APs had opinions on the traits and skills required to become an exemplary examiner, as discussed in Section 5.3 and Section 5.4.

5.6 Positive Influences on Task Performance

Table 2 displays a compilation of the responses to the question: "Can you identify some positive influences on your task performance (e.g., compensation, feedback)?" In general, these responses may be placed into three categories:

- Internal/intrinsically driven influences on satisfaction
- Receiving the recognition and respect of others
- Agency controlled influences

Responses not grouped into one of the three categories include job-related travel, liking to meet new people every day, enjoying the interview/interrogation portion of the job, and both being an intern (early in their careers) and being a mentor to interns.

TABLE 2. Self-reported Positive Influences on Performance

Positive Influence	No. of Responses
Resolving the issues, solving the case, making a difference, helping the case agent, satisfaction in protecting the country, getting a confession	9
Sense of personal achievement, pride in my work, personal satisfaction	8
Sense of satisfaction from clearing the innocent person	1
Autonomy/independence/latitude/make own decisions	2
Feedback from examinees – treated fairly and honestly, with decency and respect	2
Good reputation/recognition by others – management, case agents, other examiners, even examinees – that the examiner is very good	5
Agency support/management support for polygraph	3
Access to training/budget for training	2
Being a full time examiner/no split duties	1
Good equipment	1
Pay is good – but this is not the main positive influence	2
Travel/foreign travel	4
Meeting people every day	2
Having internships and receiving feedback, particularly instant feedback/learn from having interns	2
Interview/interrogation portion of job	1

The first category, intrinsic influences, includes the satisfaction derived from helping the investigator or case agent in resolving a case, having a sense of pride and achievement in identifying the deceptive or clearing the innocent person, and taking satisfaction in treating all examinees professionally. Examiners also consider the autonomy and independence of the job, the latitude to set their own appointments

and be out of the office when they need to, to be a very important perk of the job. As two examiners explicitly stated and many others implied through their comments, "I love my job."

In the second category, the examiners reported the positive influence of others, of being held in high esteem by colleagues, managers, and case agents. Several mentioned that having a good reputation was one of the most important job influences for them. Conversely, it should be noted that two examiners said that they were not motivated by the positive opinions of their managers. As one said, "Management saying 'great job' is not motivating." These examiners were more driven by their internal sense of satisfaction in a job well done.

In the category of agency influences, exemplary examiners reported that support for PDD exams and the profession; adequate budget for continued training; being supplied with good equipment; and not having to split duties between several jobs, that is, being a full-time polygraph examiner; were important, positive influences on their performance. Several examiners also said that though the pay is good, this is not a primary positive influence for being a polygraph examiner. As one said while discussing compensation, "There are performance rewards; I'm not in it for the cash, but it doesn't hurt. It is more satisfying to have the respect of your peers."

Finally, examiners stated that travel, and for some, foreign travel, is a positive influence on their performance. Examiners reported that they liked being out of the office and going to where they are needed. It should be noted, however, that examiners also stated that too much travel is a negative influence on their jobs. These examiners reported that they often travel more than 200 days a year for their jobs.

5.7 Negative Influences on Task Performance

Examiners' responses to the question, "Can you identify some negative influences on your performance (e.g., time pressure, workload)?" are found in Table 3. These responses cover a wide range of negative influences on performance, but in general, they may be divided into two categories, though there is possible overlap with some of these items:

- Agency-controlled influences
- Influences which are an inherent part of the examiner's position

TABLE 3. **Self-reported Negative Influences on Performance**

Negative Influence	No. of Responses
Too many bosses, wearing multiple hats, having a "double" case load (exams and investigative cases)	4
Not enough examiners to cover the work load/effects of hiring freezes	7
Pressure from others to do a polygraph when it's not appropriate	1
Case agents don't provide case background/case facts	3
"Monday morning quarterbacking" from the QC person	1
Being a lone wolf can be negative – the examiner has to be able to do everything	1
No other colleagues in the office	1
Management/morale	1
One bad examiner reflects on all examiners	1
Lack of good polygraph facilities when traveling	1
Too much travel/absence from family	10
Odd hours	1
Pressure to be successful/stress due to high expectations (from themselves and case agents)	3
Time pressure/short suspense times on cases	2
Can be difficult to detach from cases	1
Low times – not enough cases – the examiner gets rusty	1
"People who don't understand what I do. Misconception about how hard I work"	1
When people think that polygraph will solve their whole case	1
Don't get updated criteria from DACA in a timely manner	2

The category of agency-controlled influences includes wearing multiple hats and having too few examiners to meet the workload, case agents who do not provide enough case background and facts or who expect examiners to run tests when they are not appropriate, being the only examiner in an agency location, second guessing by the quality control person, morale and management issues, and having other, not-so-competent examiners in the same agency. Another negative influence is the lack of good polygraph facilities while on travel, though this may also be seen as an inherent part of being a traveling PDD examiner.

The second category, influences inherent in the position, includes too much travel, odd hours and short suspense time on cases, the possibly extended time (down time) between cases, and the lack of understanding on the part of others as to what polygraph examiners do and what the conduct of a polygraph can and can not do for a case. Included in this category are the more personal issues of internal pressure and stress to be the best possible and the inability to detach from some cases. As discussed in other parts of this report, the traits of professionalism, intensity, passion for the job, and intrinsic motivation are part of what makes a polygraph examiner exemplary. However, these traits can also have a negative influence on the performance of the job.

The final influence, "Don't get updated criteria from DACA in a timely manner," was stated explicitly by at least three examiners as a negative influence on performance. As one examiner stated, "My biggest beef – DoDPI changes to criteria. DACA is not very efficient at making known the changes. In the field we find out from the people coming out of school." Several other examiners had related comments, such as frustration relating due to not understanding the effects of changed scoring criteria, slow adoption of new criteria across their agency, and learning new scoring criteria from mentoring relationships.

6.0 Summary of Deliverables

6.1 Monthly Progress Reports

Monthly progress reports were submitted on time for every full month in support of this project, starting in June 2006 and ending in June 2007. The monthly reports provided DACA with a status of task expenditures versus planned expenditures, technical progress made, schedule status, travel conducted, meetings attended, and issues and recommendations.

6.2 Program Reviews

Over the course of the one-year task, one interim program review and one research presentation was provided to DACA. The interim program review updated DACA on progress since the kickoff meeting, interview plans for the remainder of the period of performance, a budget review, and a deliverable review. The research presentation was conducted following the completion of the interviews and included a

review of the data captured from APs as well as a budget and deliverable review and recommendations for interventions and additional research.

6.3 Final Comprehensive Project Report

This final project report is the final deliverable for the PDD Pretest task.

6.4 Important Deliverables Generated Under this Task

Table 4 lists the deliverables that were agreed to in the original contract, their due dates, and the dates when they were submitted.

TABLE 4. Contract Deliverables Generated Under this Task

Deliverable	SOW Ref.	Date Due	Date Delivered
Draft Effort Implementation Plan	6.1.1	15 calendar days	19 June 2006
Final Effort Implementation Plan	6.1.1	30 calendar days	11 July 2006
Completion and Delivery of Interim Report	6.5.1	180 calendar days	15 December 2006
Completion and Delivery of Research Presentation	6.5.4	365 calendar days	26 April 2007
Completion and Delivery of Final Report	6.5.4	365 calendar days	7 June 2007

7.0 Conclusions and Recommendations

7.1 Proposed Interventions

The results from the HPT process and the analysis of the job accomplishment and summary major accomplishments suggest that APs adhere to the process described in the PDD Program. The results from the HPT interviews suggest that existing training on the pretest provides an excellent baseline for new examiners. AP-suggested modifications to the pretest portion of the PDD Program included conducting exams on a broader population and having a greater opportunity to view examples of exemplary pretests earlier in training.

Many interviewed examiners were very complimentary of the training received from DACA; most did not recommend adding material to the pretest portion of the PDD Program. A typical attitude was that new examiners were challenged enough by the existing course and that adding new aspects would be overwhelming.

However, the examiners had many ideas for interventions that would be useful to examiners "in the field." It is recognized that many of the interventions listed here are either already offered by DACA or would be difficult to implement due to lines

between government agencies and private organizations. In some cases, it appears that the interviewees were unaware of training courses and other interventions currently offered by DACA. In others, it appears that the APs were requesting more avenues for trading information (such as online forums, conferences, and roundtables) or more direct ways to receive DACA-disseminated information. Either way, the expert examiners felt that the following interventions could both help novices become better examiners and help the experts maintain their expertise.

The following proposed DACA interventions were derived from the interviews and ensuing discussions with the accomplished examiners. Some of the interventions come directly (verbatim) from the interviewees while others are compilations of several suggestions offered by the APs.

Pre-enrollment screening

- Consider "profiling" the personality attributes of successful examiners to generate an appropriate pre-enrollment screening tool. This may help identify those most suited to this work.

Offer additional/advanced courses, particularly pretest-specific courses

- Offer an advanced, more in-depth pretest course which would be offered at least 12 -18 months into an examiner's career. Teach people after they've got most of the basics under their belts and have been exposed to different examinees. Offer more practice and mock interviews. Stress how the pretest lays the groundwork for the post-test, including themes.
- Offer a refresher course on the basics for those who have been in the field awhile (possibly 3 years, 5 years, and 10 years out)
- Offer additional classes on interviewing and rapport building.
- Offer additional classes on interviewing and interrogation.
- Offer training in the careful, clear use of language – both written and spoken. This applies to both question formulation and throughout the PDD exam.
- Offer a course on updates to test data analysis and supporting research for those who have been in the field awhile.
- Offer a course for interpreters who will be working with examiners/examiners who will be using interpreters.
- Offer a course for case agents/investigators/lawyers/union stewards who will be using/involved with PDD examinations.
- Offer a self-assessment course. Learn to evaluate, critique, and improve one's own performance. Formulize the self-reflection process.

Offer online training and information dissemination on a secure site

- Propose videos or training snippets on a secure website or on DVD that examiners could review during down time.
- Propose a mix of in-person and online "training" materials to support examiners doing the pretest.

- Support a secure community of practice forum as a collection point for stories, documents, case studies, lesson learned, research findings, etc. (free for the taking/contributing). Provide a secure message board.
- Offer a secure website as a way to disseminate the latest information. (DACA policy changes, test data analysis changes, etc.)

Host a forum for examiners to trade "lessons learned"

- Offer at least one in-person roundtable to discuss what works and what doesn't.
- Hold an examiners conference (either in conjunction with or independently of a professional organization) – with one or more tracks focused on pretest skills or issues. Support networking across agencies.
- Consider bringing examiners together every 2 years to catch up on the latest and greatest from DACA.

Provide the framework/recommendations for a mentoring program

- Consider a mentoring program for "newer" examiners – perhaps after the internship time period.

7.2 Future Research Topics

During the conduct of the pretest study, a number of potential avenues for further research became apparent. Future research topics include:

- Characterization of personality traits and backgrounds of successful examiners
- Prediction of examiner success based on early performance in the PDD Program
- Longitudinal study of examiner careers
- Comparison of the behavior, attitudes, and traits of novice and expert examiners
- Effective use of a translator in the PDD process: What is the best approach?

8.0 Bibliography

Relevant and recent literature was identified from searches in the following databases and online resources:

- Defense Technical Information Center (DTIC)
- DACA Library Holdings
- EBSCOhost Research Databases
- EiCompendexWeb (Engineering Village portal)
- Infotrac OneFile
- NetLibrary
- OCLC First Search
- ProQuest Research Library
- PsycFIRST
- PsycINFO
- PubMed
- WilsonWeb (Applied Science & Technology)
- World Wide Web Search Engines

A representative, though not exhaustive, list of keywords used included the following:

- Interrogation
- Deception Detection
- Nonverbal Communication
- Polygraphs
- Detection Of Deception
- Detecting Deception
- Interviews
- Polygraph
- Nonverbal Behavior
- Psychophysiology
- Interviewing
- Training
- Detection Accuracy
- Polygraph Testing
- Non Verbal Cues
- Polygraph Examination
- Cues to Deception
- Detecting Deceit

- Polygraph Operators
- Pretest Interview
- Interview Technique
- Interrogation Techniques
- Polygraph Accuracy
- Credibility Assessment
- Accuracy Of Deception Detection

Over 300 citations and abstracts were identified as potentially providing relevant information and were assessed to determine the need for acquiring the complete document for review. Resources such as those identified in this bibliography led to the preliminary identification of AP skills and characteristics, as well as to identify the scope and extent of prior research on the PDD pretest process. These resources are a valuable starting point for individuals wishing to gain a greater understanding of the PDD background and process.

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9.0 Appendices

Appendix A. Supplemental Interview Topics/ Questions

Do you use any checklists, job aids, etc. to facilitate your performance during a pretest?

Can you identify some positive influences on your task performance (e.g., compensation, feedback)? How about negative influences (e.g., time pressure, workload)?

What do you wish you had learned prior to taking this position? Said another way: Can you identify some common mistakes made by novice examiners?

What do you believe are the most important characteristics of accomplished performers? Said another way: What do you think makes you an accomplished performer?

What role/how important does reviewing case facts with investigators prior to the pretest play in a successful examination? What/How does it directly contribute to your execution of the pretest?

How do you configure your equipment/room setup to conduct the interview? Are there special approaches you have implemented?

To what extent do you use verbal/non-verbal cues during the pretest?

Is there/What is the "signal/criteria" that indicates to you the pretest phase is complete?

Is there a "wish list" you might give your supervisor for your job?

Is there a "wish list" you might give DACA?

Appendix B. Examiner Identified Traits and Skills

Examiner Traits

- Must be willing to admit and learn from mistakes. Must be able to handle feedback and constructive criticism.
- Willing to use a time of self-reflection following each interview to determine what was done to cause the examinee to open up.
- Must be willing to learn from everybody; willingness to learn new/different approaches.
- Must be detail oriented. Attention to detail is important.
- Intensity, passion, desire, and attitude – experts have these.
- Adaptability – can't be rigid
- Flexibility and fortitude – needed qualities.
- Must have a natural curiosity; a natural inquisitiveness about people.
- Capable of putting people at ease. Easy to talk to.
- Know how to keep their (the examiner's) ego in check.
- Must be fair and impartial/non-judgmental.
- Must be honest. Must be sincere.
- Must care about what you do.
- Must believe in what you do.
- Must have understanding and compassion for examinees.
- Must have a way with words; be able to use the right words to the desired effect. Must have the ability to talk a long time in the post-test.
- Helps to be demonstrative.
- Must be careful about revealing emotion (anger, shock, frustration)
- Persistence and perseverance.
- Sense of humor.
- Being a Type A helps.
- Must have the ability to think on your feet. Ability to improvise.
- Able to confront people when necessary.
- Have an outgoing personality
- Must be self-motivated; be a self-starter.
- Ability to make on-the-fly decisions (concerning questions and follow-on questions)
- "Establishing rapport is necessary but not trainable."

Examiner Skills

- Most important skill is building rapport with the examinee. "some examiners have it, some don't." Be friendly. Must express empathy and understanding; "be there as their advocate." Must have good interpersonal skills.

- Friendship. “Establishing friendship is more than building rapport because rapport is more short-term.”
- “I tell the case agent how to introduce me. I am not their buddy.”
- Having and expressing your authority is the most important skill – rapport is a little less important.
- Ability to interview, it is a skill learned over time – “not everyone is capable of interviewing”
- Must use active listening.
- Encourage the examinee to talk while the examiner listens. Look at the examinee; take few, if any, notes. “Dialog not a monologue.”
- Must use “soft” words during the pretest, like “looking into” rather than “investigating.”
- Examiners must be able to write – questions and reports.
- Must be able to write targeted questions. Must be able to write well designed and carefully worded questions.
- Must be explicit and use precisely defined language and meanings. Must talk everything through carefully and thoroughly during the pretest. “What does this question mean to you?” Careful question formulation (relevant questions, make sure covering issues, no wiggle room, extremely specific)
- Must learn to “set” comparison questions. Laying the foundation is an art; it is learned through experience. Novices need to put more emphasis on this. (Sometimes you need to build their egos in this phase.)
- Talk with the examinee instead of at him/her. Pay attention to the examinees’ answers and behavior.
- Must be able to talk with examinee to get him/her comfortable.
- Need to be able to relate all information, facts, purpose, in a way that the examinee can understand.
- New examiners lack the “gestalt” of the process. “New examiners do not understand the complexity and how everything affects everything else and how ‘little things’ affect everything else.”
- Must be thorough. From beginning to end of pretest, there is an accumulation of information. Skipping something weakens the exam and increases chance of an inconclusive.
- Must exhibit professionalism at all times. (how you greet the examinee, always wear a suit, how the room and equipment are arranged) Exude proper level of dominance while being respectful to position and status of the examinee.
- Must exude confidence/must portray confidence and appear competent.
- Competence is the entire picture. Tone of voice, posture, dress – all important.
- Examinee must respect and have confidence in the examiner – appearance, actions, words used are important. Examinee must have confidence in the capabilities of the examiner – this is “more important than confidence in the equipment.”

- Must have confidence in yourself. (both in your ability as an examiner and in your ability to do everything you need to on the road – you're the only examiner there.)
- Must maintain control throughout the pretest, test, and post-test. Some novices get too friendly, too close, and allow the examinee to take over the interview. "Rapport is important but you must be careful not to be influenced by the examinee."
- Must let the examinee know that you are "neutral"; that you approach the polygraph in a neutral fashion.
- Must convince examinee that polygraph is effective, must "sell polygraph." Helps to take a sales approach – make a "sales pitch" for results.
- Little things are important; attention to detail. Includes how you greet the examinee, how you dress, how equipment is arranged in the room. "If people paid more attention to the little things and paid attention to the little words, it would have an effect on the 'real' outcome." "First impressions go a long way."
- Must be a good actor or actress.
- Ability to get down to and understand the mind of the criminal (thinking, comprehension, schema of life). Have to adjust your thinking to portray yourself as a person that "understands" the examinee.
- Ability to customize the examples used in the pretest to the examinees.
- Must have developed lots of examples and stories to use during the pretest. This takes time.
- Must have a repertoire of behaviors and approaches – use what will work best with the examinee in front of you. Can't approach all audiences the same way: "You don't treat a lady in her 60s the same way as a young kid with felony convictions."
- Must consciously use body language – laid back, then move forward on the comparison questions.
- Must watch the examinee's non-verbals/body language throughout the interview. Look for "clusters" of behaviors.
- Physically mirror what the examinee does.
- Must be flexible and willing to change your questions, based on the interview. Just because they're typed into the computer, they're not set in stone. Use the review/interview to formulate/eliminate questions.
- Must learn to "jump around" in the process, not be wedded to a checklist. Too mechanical. Examiners need to be encouraged to think for themselves.
- Must learn to adapt to cultural differences across the country. Act differently based on expectations. (Also true of men and women in Spanish and other cultures)
- Need to have an awareness of social cues.
- Must know when a case is not fully investigated and not ready for a polygraph. It's helpful to have investigative background.
- Must have interrogation skills.

- Must be able to perceive many aspects of data while focusing on the important issues.
- Novices sometimes cut corners. They don't work the comparison questions. They're in too much of a hurry. Or they fall into doing tasks on automatic pilot, by rote.
- Novices sometimes let the examinee "bleed" – wiggle out of being truthful. Must prevent admissions to the comparison questions.
- Novices sometimes don't understand WHY you're doing the pretest activities. "You are not only conditioning the examinee for the in-test, but also laying the groundwork for the post-test interrogation."
- Novices don't spend enough time in case preparation – studying reports and talking to the case agent. This includes knowing how to counter what an examinee may say. "I may role play – if he answers this way, how will I counter it?"
- Novices don't recognize countermeasures.
- Novices make mistakes in chart interpretation.
- Must stay informed; read research and the anti-polygraph websites; read in psychology/theories of emotion/workings of the mind/behaviors of interest
- Must be technically proficient.
- Must learn to trust the charts. Must trust polygraph.
- Must collect/be cognizant of themes for the post-test.
- Must make signing the forms seem simple and routine. "no big deal"
- Must psych yourself up for every exam – they're all equally important.
- Must stay in touch with peers; learn from others
- Use props to clarify issues during the interview.